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- 3. Mai 2002

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29. April 2002

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Application No. 97 947 911.0-2214	Ref. M 5727	Date 26.04.2002
Applicant MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.		

Communication pursuant to Article 96(2) EPC

The examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(1) EPC.

You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a period

of 4 months

from the notification of this communication, this period being computed in accordance with Rules 78(2) and 83(2) and (4) EPC.

Amendments to the description, claims and drawings are to be filed where appropriate within the said period in three copies on separate sheets (Rule 36(1) EPC).

Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Article 96(3) EPC).



DEBRE A  
Primary Examiner  
for the Examining Division

Enclosure(s): 5 page/s reasons (Form 2906)  
copy of US-B1-6 195 454



The examination is being carried out on the following application documents:

Text for the Contracting States:

DE FR GB

**Description, pages:**

1-55 as originally filed

**Claims, No.:**

1-24 as originally filed

**Drawings, sheets:**

1-19 as originally filed

1. The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US-B1-6 195 454

D2: JP-A-4 370 995.

Document D1 is cited by the examiner (see the Guidelines, C-VI, 8.9). A copy of the document is annexed to the communication.

2. The present application does not meet the requirements of Article 52(1) EPC, because the subject-matter of **claim 1** is not new in the sense of Article 54(1) and (2) EPC.

D1 discloses an electronic component to be mounted on a printed circuit board and comprising the following features (the references in parenthesis applying to this document):



a plurality of electrical connection portions provided on an electrical connection surface of the electronic component and the printed circuit board (see reference signs 3 and 4 in Fig. 1 and column 4, lines 16 to 31); and  
a reference mark that serves as a reference of arrangement positions of the electrical connection portions (see reference sign 33 in Fig. 1 and the accompanying description in column 5, line 22 to column 6, line 15).

Therefore, D1 discloses all of the features of present claim 1.

3. Although **claims 12, 13, 20, and 21** have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

Hence, claims 12, 13, 20, and 21 do not meet the requirements of Article 84 EPC.

In order to overcome this objection, it would appear appropriate to file an amended set of claims defining the relevant subject-matter in terms of a single independent claim in each category followed by dependent claims covering features which are merely optional (Rules 29(3) and (4) EPC).

4. Furthermore, the above-mentioned lack of clarity notwithstanding, the subject-matter of **claims 12 and 13** is not new in the sense of Article 54 EPC, and therefore the requirements of Article 52(1) EPC are not met.

The mounting method known from D1 comprises the following features (the references in parenthesis applying to this document):

taking out an electronic component from a component supply section and mounting the component in a mounting position on a printed circuit board (see column 3, lines 16 to 33);



a first recognizing process for recognizing a reference mark that is provided on the component and serves as a reference of arrangement positions of electrical connecting portions provided on an electrical connecting surface of the component and the printed circuit board (see column 5, lines 41 to 65); a second recognizing process for recognizing a recognition mark of a target mounting position on the printed circuit board (see column 6, lines 22 to 40); and a quality checking or position correction process in a mounting stage according to the results of recognition of the first and the second recognizing process, whereby the mounting of the component that has passed through the quality checking or correction process is executed (see column 5, line 66 to column 6, line 44).

Therefore, D1 discloses all of the features of present claims 12 and 13.

5. Furthermore, the above-mentioned lack of clarity notwithstanding, the subject-matter of **claims 20 and 21** is not new in the sense of Article 54 EPC, and therefore the requirements of Article 52(1) EPC are not met.

The electronic component mounting apparatus shown in D1, for carrying out the component mounting method, comprises all of the corresponding apparatus features mentioned in claims 20 and 21, in particular:

a component supply section, a mounting head, a mounting table, a component inspecting section, a board recognition section, and a control section (see the references to the corresponding method steps in paragraph 4 above.)

6. Dependent **claims 2 to 5, 7 to 11, 14, 16 to 19, and 22 to 25** do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to novelty and inventive step, the reasons being as follows:

- 6.1 The further features mentioned in claims 3,5,8,10,11,18,19,22, 24 and 25 are known from D1 as well; see column 5, lines 41 to column 6, line 53 and Fig. 1. The subject-matter of these claims, therefore, does not meet the requirement of novelty.
- 6.2 The further feature of a reference mark which is a projection is mentioned in claim



4 are mentioned in D2 and are applied there for the same purpose; see the paragraph "CONSTITUTION" in the abstract and reference sign 1b in the figure. the subject-matter of claim 4, therefore, is lacking an inventive step.

- 6.3 The further features mentioned in dependent claims 2, 7, 9, 14, 16, 17, and 23 relate to particular techniques of forming the reference mark and coding information related to the reference mark. These measure are, however, within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance. Consequently, the subject-matter of these claims also lacks an inventive step.
7. The combination of the features of dependent **claim 6** and dependent **claim 15** is neither known from, nor rendered obvious by, the available prior art. It is suggested therefore that new independent claims be drafted to include these features, bearing in mind that the features known in combination in D1 should be placed in the preamble of such a claim in accordance with Rule 29(1) EPC.
8. The following further deficiencies in the description and the claims should be dealt with:
- 8.1 The sentence on page 54, which relates prior art "incorporated by reference" should be deleted because it does not have a precise meaning within the provisions of the EPC and because the disclosure of the document cited on page 54 is not necessary for carrying out the invention (Art. 83 EPC; see the Guidelines C-II 4.18).
- 8.2 Reference signs in parentheses should be inserted in the claims to increase their intelligibility, Rule 29(7) EPC. This applies to both the preamble and characterising portion (see the Guidelines, C-III, 4.11).
9. The following further amendments are desirable and would facilitate the examination procedure:
- 9.1 The claims should be drafted in the two-part form as required by Rule 29(1) EPC.



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- 9.2 When filing amended claims the applicant should at the same time bring the description into conformity with the amended claims. Care should be taken during revision, especially of the introductory portion and any statements of problem or advantage, not to add subject-matter which extends beyond the content of the application as originally filed (Article 123(2) EPC).
- 9.3 It would expedite the examination under Art. 52(1) EPC, if the applicant would indicate in the letter of reply the difference of the subject-matter of the new independent claim vis-à-vis the state of the art and the significance thereof. In particular, the present invention should be presented and compared with the prior art. in terms of a technical problem and its solution.
- 9.4 In order to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see the Guidelines E-II 1.).
- If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.
10. This communication is furthermore regarded as representing a reply to your enquiry with letter of 12.2.02 as to when the applicant may expect to receive the first official communication in respect to the present application.